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ABSTRACT

Jean Piaget's theories of development are reviewed and implications for instruction of mildly and moderately retarded children are drawn. Piagetian research with the retarded is traced, particularly the work of Barbel Inhelder. The research cited concludes that the cognitive development of retarded children follows the same pattern as normal children but at a slower rate. The psychometric view of intelligence is compared to the Piagetian view, and the benefits of assessment based on the Piagetian perspective are noted. A developmental approach to curriculum is advocated in which children's learning strategies are determined by their stage of cognitive development. Examples of strategies for sensory-motor, preoperational, concrete operations, and formal operations stages are given. Stage appropriate stimulation is the basis of continued cognitive development. The author comments on a demonstration project to design a cognitive intervention program based on Piaget's theories. (CL)

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"A Developmental Model for the Education of Children Evaluated Mentally Retarded"

Westfield State College

First Annual Presidential Lecture Series

April 13, 1980

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The familiar proverb which says: "When one is stupid, it's for a long time" seems to be taken literally, without criticism, by some schoolmasters; those who disinterest themselves in students who lack intelligence; they have for them neither sympathy nor even respect, as their intemperance of language makes them say before these children such things as: "This is a child who will never accomplish anything . . . he is poorly gifted . . ." Never! What a large word!

Alfred Binet, 1913

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Mental Retardation as Cognitive Delay

Within the past ten years gestures of benign neglect towards the mentally retarded have been transcended by the conviction that individuals with cognitive differences can grow, learn and often lead independent lives. In 1971 the President established a national goal for the year 2000 to reduce the incidence of mental retardation by one half. Congress impelled intervention efforts, on behalf of three million retarded children, when it passed the "Education of Handicapped Children's Act" in 1975. This law mandates a free and appropriate public education for all disabled children from the ages of three to twenty one. The concept of the educability of all children was specifically guaranteed in the legislative requirement that public schools design and implement individual educational plans.

Becoming Mentally Retarded

Defining mental retardation is the first step in effecting educational interventions. The American Association for Mental Deficiency has provided the generally accepted definition of mental retardation. According to the AAMD, "mental retardation is subaverage intellectual functioning occurring concurrently with deficits in adaptive behavior and manifested before the age of 18." A score of 69 or below on an I.Q. test is considered indicative of subaverage intelligence, and adaptive behavior scales are recommended to determine a child's ability to function in his or her environment. Yet parameters for identifying mental retardation are ambiguous.

Twenty seven states do not use the AAMD definition, eleven states use a cutoff point higher than 69, and 15 states do not use any measure of adaptive behavior (Hulberty, 1980).

Many educators are dissatisfied with traditional methods for assessment and planning for children with cognitive differences (Scheff, 1966; Cottle, 1976; Wolfensberger, 1972). They criticize the arbitrary process used to identify children as retarded, and the stigmatizing effect that invariably accompanies a diagnosis of "subaverage intellect". Blatt (1977) and Sarason (1979) point to the self fulfilling prophecy of failure that seems to accompany procedures that either neglect a child's ability or individual perspective.

Piaget's Theory

The purpose of this paper is to describe how the developmental theory of Jean Piaget can provide a model for the educational assessment and planning for children who have been identified as mildly and moderately retarded. The term cognitively delayed is proposed as an alternative descriptor to designate children who do not have serious motor or visual disabilities and whose I.Q. scores range from 69-40. This method assumes that cognitively delayed children's intellectual growth develops at a slow rate and appropriate environmental stimulation can promote continued conceptual development.

For over 50 years Piaget has been describing how children's thought can develop. He reports four distinct stages of mental acquisition: sensory-motor, preoperational, concrete, and formal operations. Piaget is an interactionist. He believes that

intellectual growth is the product of maturation and experience. Piaget views cognitive development as an invariant pattern of intellectual growth that begins at birth and usually reaches a conclusion during adolescence. Each stage is qualitatively different, therefore children's ability to reason is embedded in the characteristics of their stage of development.

Piaget has indicated approximate ages when children pass through each stage; but for Piaget, the rate of progress is superficial. Instead Piaget emphasizes the predictable sequence of cognitive abilities that children acquire as they move from egocentric to logical ways of thinking about the world around them (Piaget, 1950, 1967). He is not interested in the particular content of children's thought, but with the psychological operations comprising intellectual development. Piaget defines intelligence as the ability to make adaptive choices.

Piagetian Research with the Retarded

The applicability of Piaget's theory to understanding the mental operations of retarded children was initiated in 1943 by Piaget's colleague, Barbel Inhelder. Responding to an invitation from mental health officials in Verdun, France, Inhelder (1968) spent two years conducting Piagetian experiments with children functioning at every level of retardation. She concluded that retarded children's mental development followed the same pattern Piaget had observed in normal children. The primary difference between normal and retarded children was the slower rate of stage acquisition in the retardates, and the tendency for development to fixate in accordance with the severity of mental debility.

Since the manner in which mental retardation is viewed sets the

course for defining and treating children, the results of Inhelder's study opened the door to a new method for studying cognitive differences. As Stafford and Klein (1977, p. 308) note in their comprehensive review of Piagetian research with mentally retarded children:

> "An important aspect of Piaget's orientation is that it enables one to shift from the deficit notion described by Zigler, (1966) to understanding where the retarded may be in terms of developmental structures. This positive view enables us to look at what retarded children are rather than what they are not; what they know rather than don't know. In addition we can specify successive stages of development for the individual child."

Other researchers confirmed the stage progression of retarded children and discovered that mental age computed from I.Q. tests is a good indicator of a child's cognitive level (Uzgiris and Hunt, 1975; Mannix, 1960; Marchi, 1971). Woodward (1959) reported that behaviors, previously interpreted as bizarre and deficient in profoundly retarded children, were normal sensory motor activities. She reports that the bizarre quality is due to the discrepancy between the retardates size and actions. For example, she observed that certain manneristic behaviors such as twiddling of fingers in front of the face were typical sensory motor actions.

Hidden abilities of retarded children soon became apparent. Researchers discovered that many retarded children were more astute at performing conceptual tasks such as classifying than they were at verbalizing their thinking (Stephens, 1966; Klein, 1972). Milgram (1973) noted that cognitive capacity is not accurately assessed when there is an overreliance on verbal aspects of learning. Inhelder's observation of fixation in stage development was

more closely examined by McManis (1970). He agreed that retarded children's arrestment was accounted for by their difficulty in making transitions from one level of cognitive thought to another. He described that a lag occurs in the ability of retarded children to shift from reliance on perceptual clues in their thinking to recognizing that objects can change in arrangement or shape without becoming more or less in quantity. For example, the child is unable to realize that pouring water into a tall thin container does not increase the volume.

These studies indicate that the cognitive development of retarded children follows the same pattern as normal children with occasional oscillations and periods of lags during transitions from one stage of thinking to another. This is strong evidence that a developmental approach offers educators new opportunities for improving both assessment and curriculum design for cognitively delayed children.

Assessment of Cognitive Ability

The psychometric view of intelligence, exemplified in the I.Q. test, shares some similarities with Piaget's theory of cognitive development (Elkind, 1971). Both approaches assume that intelligence at least in part is genetically determined. Consequently, the role of maturation is important within each view. Each perspective assumes rationality is the central aspect of intellectual activity. However, the differences between the two interpretations are significant.

Most children who are classified as mentally retarded, approximately 80%, are identified by an I.Q. test after entering

public school. The I.Q. test is a psychometric instrument that identifies children as mentally retarded when their score on the exam matches the cutoff point determined by state regulations. Once a child is evaluated as retarded the test score is placed in the child's cumulative folder and the child is referred for special education services. Because the purpose of the test is to compare a child to a group of peers in terms of the total number of correct answers to standardized questions, it provides little useful information about an individual child's intellectual abilities. The sole function of an I.Q. test is to place a child on a continuum ranging from superior to subnormal intelligence.

Piaget's theory is qualitative in nature. It describes the characteristics of cognition. For Piaget the issue is not how smart or how slow an individual child is but how the child interprets experience. He is interested in the type of mental operations a child acquires as he or she matures and interacts with the environment. The I.Q. test is concerned with interindividual differences. Piaget emphasizes intraindividual changes.

While the I.Q. test favors verbal facility as a fundamental component of intelligent thought, Piaget sees intelligence as emanating from a child's actions. Piaget believes that during pre and elementary school years it is the child's ability to manipulate objects and interact with peers that nurtures thought. Oleron and Furth (1957) were curious about the relative impact of verbal ability and actions on cognitive growth. They compared the development of three groups of children who were normal, deaf-mute, and

blind. After giving each group a series of Piagetian tasks in seriation, classification, and conservation, they found little difference between the deaf-mute and normal children. They discovered that the same tasks were solved by the blind group on the average of four years later than the others.

Questions in the I.Q. test are derived empirically, while Piaget's propositions are grounded in theory. The purpose of the first I.Q. test developed by Binet in 1906 was to select children who would not profit from a public school education. For the most part, the I.Q. test evaluates skills and abilities that are deemed desirable for public school success. Because the test is bound so closely to the social system of the school, it is linked to the predominant values of those who control the schools, design the curriculum, and teach the children. Children from different social systems do not do well on the I.Q. test, and they do not do well in the public schools (Mercer, 1973). One measure is the disproportionate number of minority children who are identified as mentally retarded (Franks, 1971).

In contrast, Piaget's theory proposes that the pattern of development he describes is universal. Children may differ in the ages they move into a new stage of thought, but the sequence remains invariant. The cognitive operations that characterize each stage always follow the same order. Many cross-cultural studies have verified Piaget's position. Price Williams (1961) found that West African children aged 5-8 acquire conservation abilities

in the same sequence as Western European children. Opper (1971) investigated Thai children's movement through the sensory-motor, pre-operational, concrete, and formal stages of thought. She studied two groups. One comprised 142 school children from the city of Bangkok and the other included 140 rural children from a rice farming community. The children in both samples ranged in age from six to sixteen. Opper utilized Piaget's clinical method to appraise both the stage of reasoning and the cognitive operations within each stage. She found that both groups demonstrated the same level and sequence of reasoning observed in Swiss children.

Utilizing a Piagetian Perspective

The cross-cultural, descriptive nature of Piaget's theory offers several advantages for educators in their efforts to devise educational plans for cognitively delayed youngsters. The intra-individual aspect of the Piagetian approach means that a teacher can acquire data about the psychological operations performed by individual children. Information can be used to match the curriculum to the child. This method is preferred to the standard educational practice of trying to teach the child an externally derived curriculum that is often out of rhythm with the child's level of cognitive development (Lilly, 1979). Language differences that are cultural in nature, such as Black Standard English, need no longer obscure a child's abilities. Judgments will be based on assessment of the child's actions rather than verbal fluency. Finally, because Piaget's propositions are derived theoretically, educators can plan and predict objectives for minority children without the taint of cultural bias.

Researchers are translating Piaget's theory into a variety of diagnostic instruments. Uzgiris and Hunt (1975) have devised an infancy ordinal scale of psychological development that tracks six areas of sensory-motor development. Likewise, Laurendeau and Pinard (1962) have constructed an ordinal scale applicable to children from two to twelve years of age.

In 1971 the McGraw-Hill Conference brought together some of the most noted developmental psychologists in the world, including Piaget, to discuss the theoretical and technical problems in devising standardized ordinal scales based on Piagetian theory. As one might anticipate, the illustrious group had many agendas to argue and clarify. The consensus was that further efforts should concentrate on establishing a sequence of hierarchial criteria that describe, in behavioral terms, the different modes of thought that emerge in each stage of mental development. A criterion approach to assessment does not depend on comparisons, but focuses on behaviors performed by individuals. The emphasis on individual behavior makes the criterion approach an ideal methodology for assessing children within a Piagetian framework (Gray, 1978). However, selection of the appropriate behavioral criteria to match underlying psychological processes continues to challenge Piagetian educators.

A Developmental Curriculum

Piagetian research with mildly and moderately mentally retarded children has demonstrated that their reasoning abilities are better characterized as developmentally delayed than deficient. From an

educational point of view, the implications of these findings are unique. A developmental perspective of mental retardation means new objectives for cognitively delayed children based on alternative assumptions about the way they learn. The essential goal of a developmental curriculum is to provide delayed children with learning experiences and opportunities that will enhance the continued growth of their reasoning abilities. Inherent in this goal is the proposition that how children think is more important than what they think. A cognitive developmental model is concerned with fostering the underlying psychological processes that enable delayed children to learn about themselves and the world about them (Kaya, 1961). The following two principles, derived from Piagetian theory, are intended to guide educators in conceptualizing a developmental curriculum for cognitively delayed children.

Children's Learning Strategies are Determined by Their Stage of Cognitive Development

From his careful observations of children Piaget derived the premise of assimilation-accommodation to explain how children's learning strategies evolve as they adapt to their environment. As the child interacts with the environment new experiences are integrated and generalized to old experiences; this is assimilation. At the same time the child is responding to outer circumstances in new and more sophisticated ways; this is accommodation. The process of assimilation-accommodation is dependent on the quality and type of experiences that are available to the child (Hunt, 1961). Piaget views the relationship between external stimulation and adaptation as reciprocal. The more the child is stimulated in novel ways, the more he or she will be motivated to

interact and learn new adaptive techniques. Assimilation and accommodation organize new cognitive structures, such as classification skills, in an invariant pattern of conceptual development.

Maturation plays a key role as well, because children cannot assimilate or accommodate experiences that require modes or strategies for learning that they have not yet acquired. As Ginsburg (1978, p. 222) notes, "as a result of Piaget's work we have become increasingly aware that the child is not just a miniature although less wise adult, but a being with a distinctive mental structure that is qualitatively different from the adult's." The quality of a child's mental activity is bound to the characteristic learning strategies of each of the four stages of cognitive development. The distinctive mediating processes of each stage are often overlooked by adults who are successful in teaching children to perform certain acts like counting from one to twenty through drill or rote learning, while the child still has yet to internalize fundamental mathematical ideas like ordering ten sticks of different lengths from smallest to largest. Often, in the case of cognitively delayed children, the inability to retain the use of the numbers they have been taught is interpreted as an example of their thinking deficiencies! An understanding of the learning strategies that children utilize in each stage of mental development is a fundamental aspect of a developmental curriculum.

Sensory-motor strategies. The sensory-motor stage is the initial phase of mental development that begins at birth and typically develops through infancy. As its title suggests, learning is linked to sensory input and evolving motoric abilities. During this time

the child organizes and constructs new cognitive structures through imitation and play. Basic egocentrism that is reflected in neonatal reflexes slowly shifts to an awareness of an external world that exists independently of the child. For example, play with objects that swing or drop out of sight evolves into rudimentary concepts of object permanence. Trial and error takes on an increasingly important role as a learning strategy as the child attempts to direct actions toward specific ends. In the last phase of sensory-motor development the child begins to create mental pictures of objects and people. The child is able to locate desired items like toys or food by mentally representing their location. This symbolic replacement of performance by internal representations is the operation that allows for the emergence of pre-operational thought.

Preoperational strategies. During the preoperational period the child is developing an increased ability to think symbolically through language, deferred imitation, mental imagery, symbolic games, and drawing (Cromer, 1976). These strategies for learning remain essentially intuitive as the child manipulates, sorts, and classifies objects. Interaction with peers is particularly important at this point because the role playing and juxtaposition of contradictory perspectives creates a "cognitive dissonance" within the child that forces reflection and acceptance of other ideas. These contradictions enable the child to transcend egocentric thinking. Indeed, it is the child's opportunity to experiment, argue, and pretend that carves the way for the eventual emergence of logical thought. The ability to recognize that perceptual changes

in objects do not necessarily imply absolute changes is the cognitive operation of "reversibility" that precedes the concrete stage of mental development.

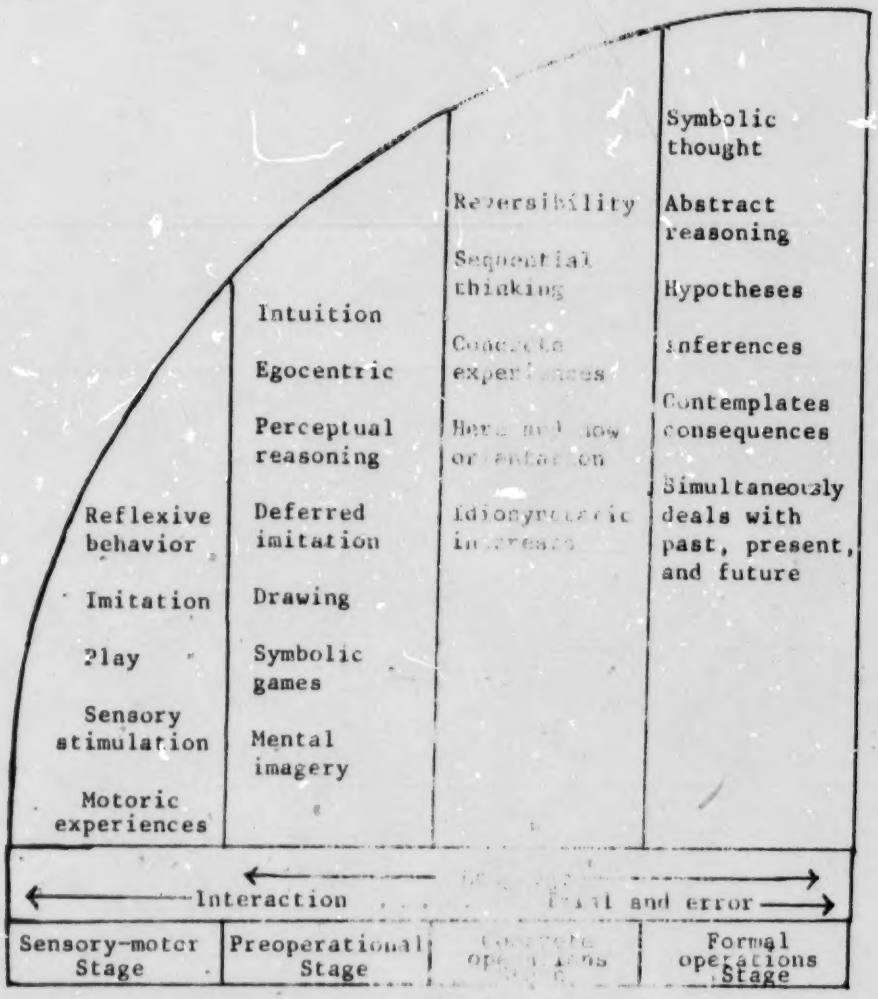
Concrete operations strategies. In the third phase of thought known as "concrete operations", the child is able to manipulate mentally both objects and their representations, such as numbers. The child can discern sequences, including a series of intervening steps between initial and final states. But the child's thoughts are still tied to concrete experiences, and opportunities to act with and on objects are the child's primary way of learning. The opportunity to experiment with materials, to select topics of interest, to investigate relationships, coupled with an increased need to share ideas verbally, characterize learning methods during this stage.

Formal operations strategies. The formal operations of thought, which is the fourth and final stage of mental development, becomes necessary when the child has acquired the ability to hypothesize about outcomes. The symbolic thinking of language, as the basis of speculative thought, comes into full bloom with the capacity to utilize the preposition "if". Typically this transition occurs in early adolescence when mental activity evolves into inferential thinking. Logical, systematic thought is the essential learning strategy of the formal operations' youngster who is able to search for solutions among an array of alternatives. The child has acquired adult learning strategies and is capable of analysis, synthesis, and integration of information into an unlimited number of possibilities.

As Figure 1, page 14, indicates, there are two basic features

Figure 1

Learning strategies children use in the different stages of cognitive development.



Adapted from Wyne, M. and O'Connor, P. Exceptional Children, A Developmental View, 1979, p. 68.

of cognitive learning that permeate each stage of development. First, the child learns best through action; and second, it is the opportunity to make mistakes that encourages continuing cognitive development. Therefore, it is crucial that a cognitive curriculum for delayed children be organized with the intent to provide myriad opportunities for children to interact freely with both materials and other children.

Continued Cognitive Development is Contingent on Stage Appropriate Stimulation

Teachers of cognitively delayed children often assume that their students learn in ways that are fundamentally different from typical children. The techniques used in many special programs are based on the premise that cognitively delayed youngsters are deficient thinkers. Educational objectives called readiness skills are designed to promote "normal" behaviors. Teachers believe they should socialize children to the demands of public school life by teaching them to sit still, follow directions, and adjust to classroom routine. They also attempt to eliminate deficient behaviors such as "distractability", "perceptual disorders", and "hyperactivity". Poor motivation and a lack of interpersonal skills are recognized as serious problems, but these behaviors are interpreted as symptoms of mental retardation and are treated by rewarding children for "appropriate behavior" and disregarding or punishing "negative behavior". "Appropriate behavior" means finishing classroom assignments, and "negative behavior" means not conforming to classroom policy. Rudimentary academic skills such as arithmetic computations

are taught by task analysis, a procedure that presents lessons in carefully sequenced bits of information.

Expectations for student success are low, based on a history of past failures and the inherent pessimism of the label mentally retarded (Hobbs, 1975). Often cognitively delayed children are segregated in special classes or put on resource room schedules for special tutoring for up to sixty percent of the school day. On a nation-wide scale there is a 2 to 1 chance that the child is a member of a minority ethnic group and a 4 to 1 chance that the child is a boy (Center for Law and Education, Harvard University, 1973; Kaufman, 1978).

Reid (1978) analyzed special education methods from a Piagetian perspective and observed that many special education techniques assume a deficiency perspective of cognitively delayed children. Instead of helping children to develop their own cognitive abilities, the deficiency approach assumes the children learn best when the teacher controls all aspects of the learning situation. Reid denies the assumption that delayed children learn best through repeated exercise and drill and describes how emphasis on perceptual training, elimination of errors, and careful sequencing of activities fails to take into account a child's individual learning strategies.

The neglect of special educators to consider underlying developmental processes in their teaching tends to create a conceptual gap between the curriculum and the mediating cognitive structures of the child. The overall effect can be a loss of motivation and continued learning failures.

MacMillan (1971) concluded, in his review of the research on motivation with mentally retarded individuals, that persistent failure may result in a lower level of functioning, diminished cognitive and affective development, and further decrease in self concept. Meanwhile Piagetian educators stress the need to design a cognitive curriculum by building on cognitive acquisitions while respecting the need for children to direct much of their own learning. Motivation, they suggest, is enhanced when a child is able to interpret experience in terms of his or her frame of reference. The discrepancies between traditional special education practices and a developmental approach to educating cognitively delayed children suggests that deficiency oriented programs may be contributing to cognitive delay rather than remediating it.

Piaget (1971, p. 7) is careful to point out that cognitive development does not just happen and that the role of experience is crucial to continued cognitive growth:

> ". . . the ages at which different children reach the stages (of development) may vary. In some social environments the stages are accelerated, whereas in others they are more or less retarded. This differential development shows that stages are not purely a question of maturation of the nervous system but are dependent on interaction with the social environment and with experience in general."

The strength of a Piagetian model is that it provides the environmental stimulation to match a child's stage of cognitive development. This matching of curriculum to the child will produce successful learning experiences and continued cognitive growth.

Demonstration Project

In January, 1980, I began a demonstration project to research

and design a cognitive intervention program derived from Piaget's theory. The project has two objectives: to produce a criterion referenced scale for assessment of preoperational thinking in delayed children and to organize learning activities to promote the continued mental development of cognitively delayed children. The preoperational stage was selected for study because most children initially identified by the schools as cognitively delayed have a mental age between two to seven, as measured by I.Q. tests.

Four children were selected as subjects. Their I.Q. scores range from 55-41, and their mental ages are four to six, as measured by the McCarthy Scales for Children and the Stanford Binet Intelligence Tests. Two of the children are students in a special class for the mentally retarded at Juniper Park School, Westfield, Massachusetts, on the Westfield State College campus; and the two others are enrolled in an early intervention program for disabled children at the Robinson Park School, Agawam, Massachusetts. Two sites were chosen in order to compare the relative merits of a cognitive curriculum in a preschool and elementary school setting.

Criterion-Based Assessment of Cognitively Delayed Children

The efforts of any intervention program are contingent on having accurate information about the level of a child's cognitive functioning. Previous efforts to describe in sequence children's cognitive development have listed psychological operations that children utilize in their thinking. Because a criterion approach suggests abilities to be learned, a strictly psychological interpretation would have teachers instructing children in object

permanence or conservation. The value of direct training of psychological operations has been questioned by Piaget and other educators (Piaget, 1964; Flavell, 1972; Kamii, 1972). From an educational point of view a more sensible approach is to identify content areas that reflect psychological operations and still adhere to cultural expectations about how children's learning should proceed.

Weikert, et al (1971) have identified logico-mathematical and spatio-temporal relations as representing the range of mental operations constructed by the preoperational child. For educational purposes they suggest the content areas of classification, seriation, spatial, and temporal relations match the cognitive abilities developed during the preoperational stage of development. Skills in each of these content areas can be arranged in a sequential hierarchy. An ordinal criterion scale would enable the teacher to assess, through observation, qualitative changes in delayed children's thought as they interact with materials, peers, and adults. Because the observation scale is criterion referenced, and theoretically derived, it guides educational planning by describing a predictable sequence of cognitive abilities. For example, if a child is able to make "big" and "small" balls of clay, the next cognitive objective would be to order several objects of different size from smallest to largest. At the same time that the child is acquiring new cognitive abilities in seriation the child is also learning pre-number concepts.

During the first stage of the project, I am refining a pre-

liminary criterion observation scale based on Weikert's division of competencies. Classification ability is the initial area of investigation. Field workers are assessing each child's ability to classify objects in terms of the sequence of resemblance sorting, functional groupings, descriptive groupings, and generic categories. Data is being gathered by participant observation about the behavior of children as they make the transition from one level of classification to the next. This information will be synthesized with the literature in order to identify a sequence of classifying behaviors in delayed children. The same procedure will be followed in the areas of seriation, temporal, and spatial concepts.

When the criterion scale is completed it will be reviewed by a panel of educators with experience in Piaget's theory. Finally the scale will be field tested by special educators to determine its reliability and usefulness for educational planning.

Conditions for Learning

The cognitive curriculum is both teacher and student directed. The primary responsibility of the teacher is to identify the child's current level of cognitive functioning and to provide a sequence of activities that are appropriate in terms of a developmental perspective. While presenting learning activities the teacher will observe the child's interest and involvement in order to determine if modifications are needed in materials or objectives. Because children are engaged in many self-directed activities, the teacher has opportunities to watch individual children. Within a deficiency model the teacher controls children's learning through

verbal instruction. In a cognitively oriented classroom control is promoted by the child's activity.

Children are encouraged to develop exploratory classroom behavior by manipulating materials and describing the relationships they perceive. The teacher guides learning by asking children questions about their activities and perceptions. Children are encouraged to expand language usage as they describe relationships of objects. For example, when children are engaged in a classification activity the teacher will stress the use of certain key words such as "sort", "match", "alike", and "different".

Because children at the preoperational stage of development attach egocentric meanings to events and situations, the teacher anticipates that many of the children's observations will be "wrong" from an adult point of view. The emphasis is on assisting children to move beyond egocentric thinking by showing confidence in the validity of the perceptions while creating novel situations that force children to consider alternative perspectives. Piaget calls the phenomenon of stretching perceptions "cognitive dissonance", and he considers it the basic motivating force in learning.

A significant aspect of the cognitive curriculum is a cooperative working relationship with children's families. Parents will be invited to participate in classroom activities and to discuss their perceptions of their children's developmental needs. Parent workshops will provide access to active learning methods that can be used at home. A cognitive program is based on the Piagetian

assumption that learning can happen in all situations, so it is particularly important that the school and families share perspectives and ideas.

Conclusion

Piaget's theory can provide a developmental model for understanding the psychological needs of cognitively delayed children. An adjustment in the psychological interpretation of mental retardation will alleviate two social problems that perplex special educators: the detrimental effect of labelling children retarded, and low teacher expectations for labelled children.

The Labelling Process

The label mentally retarded has served as a rationale to segregate children. The primary effect of the labelling process has been the placement of children in special classes, where they have languished in isolation from the normal events that fill most children's school days. Children afflicted with Down's syndrome and cerebral palsy are grouped in separate classes with children who are identified as "socially retarded". They are considered to be a homogeneous group, although a score on an I.Q. test is their only common denominator. Efficacy studies of special classes have produced no evidence that children identified as mildly-moderately retarded learn better when removed from regular classes (Blatt, 1958; Cain and Levine, 1961). The practice continues, however, because the conceptual categorizing of children as deviant tends to reinforce deviant methodologies.

A developmental model would facilitate a blending of all

children by placing them on a continuum of cognitive abilities without undue emphasis on age or etiology. This process would help steer cognitively delayed children into less restrictive environments, while blurring the reified distinction between normal and subnormal intelligence.

Teacher Expectations

The effect of teacher expectations on student performance is both a common sense and empirical reality (Beez, 1968; Rosenthal and Jacobson, 1968). When a child is evaluated mentally retarded, teachers search for clues in the child's behavior that will support the diagnosis. Special education teachers are trained to detect deficiencies in perception, memory, attention, and abstract reasoning. Often a vicious cycle is completed when the child's failure to learn is explained by his or her retardation. A recent study by Hereshoren and Burton (1979) reported that elementary and secondary teachers believe that children with intellectual handicaps are far more difficult to teach than children with any other type of disability.

Within a Piagetian framework teachers will expect cognitively delayed children to change and learn. Rather than wrapping their expectations in a cloak of pessimism and predeterminism, teachers will channel their efforts into promoting emerging skills. The substitution of a developmental perspective for a deficiency point of view will mean an optomistic shift in teachers' attitudes and classroom behavior as they organize learning activities that dovetail into the child's conception of reality.

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